

# Hansen's Disease (*Mycobacterium leprae*)

(Also known as Leprosy)

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## 1) THE DISEASE AND ITS EPIDEMIOLOGY

### A. Etiologic Agent

Hansen's disease (also called leprosy) is a chronic infectious disease caused by the bacterium *Mycobacterium leprae*.

### B. Clinical Description

The disease manifests in a clinical spectrum between two forms: lepromatous and tuberculoid leprosy. Borderline leprosy has features of both, with a tendency to shift towards the lepromatous form in the untreated patient and the tuberculoid form in the treated patient. Indeterminate leprosy is an early form that may develop into any of the other forms. The lepromatous form of leprosy usually exhibits extensive and bilaterally symmetrical skin nodules, papules and macules and diffuse infiltration of the face, hands and feet. Nasal mucosa and ocular involvement may lead to obstructed breathing and eye inflammation. The tuberculoid form of leprosy exhibits scarce but well-demarcated skin lesions with spreading edges and a clearing center. The lesions are anesthetic or hypesthetic (have absent or reduced sensation) and are bilaterally asymmetrical. Significant peripheral nerve involvement may occur. Loss of sensation resulting from nerve involvement can lead to serious consequences including ulcerations, fractures and bone resorption. Laboratory confirmation is based on the presence of acid-fast bacilli in skin smears or biopsy.

### C. Reservoirs

Humans are the only reservoir of proven significance for leprosy. There have been reports suggesting that leprosy in armadillos may be naturally transmitted to humans.

### D. Modes of Transmission

The exact mechanism for the acquisition and transmission of leprosy is not known. However, household and prolonged close contact may result in transmission. Large numbers of the organism are shed in the nasal discharge of untreated lepromatous patients and the bacilli may remain viable in dried nasal secretions for at least 7 days. Large numbers of bacilli are also shed from the skin lesions in the lepromatous form of leprosy.

### E. Incubation Period

The incubation period is unclear but seems to range from 9 months to 20 years.

### F. Period of Communicability or Infectious Period

Clinical and laboratory evidence suggests that infectiousness is lost in most instances within 3 months of continuous and regular treatment with dapsone or clofazimine or within the three days of treatment with rifampin. It is questionable whether the tuberculoid form of leprosy is infectious at all.

### G. Epidemiology

While worldwide prevalence of leprosy cases decreased to less than 1 million registered cases in 1998, incidence has changed little since 1985. The majority of patients live in developing countries, with 92% in just 16 countries, led by India and Brazil. In the United States, disease usually occurs in immigrants or refugees. Although leprosy affects people of all ages and gender, cases under 5 years of age are rare. In the past 5 years, 200-250 new cases have been reported to national registry in the United States. Of these, approximately 175

are new cases diagnosed for the first time. From 1988 to 2001, twenty cases of leprosy were reported to NJDHSS, all of them “imported”.

## 2) REPORTING CRITERIA AND LABORATORY TESTING SERVICES

### A. New Jersey Department of Health and Senior Services (NJDHSS) Case Definition

#### CASE CLASSIFICATION

##### A. CONFIRMED

A clinically compatible case AND:

- Demonstration of acid-fast bacilli in skin or dermal nerve, obtained from a full-thickness skin biopsy of a lepromatous lesion.

##### B. PROBABLE

Not used.

##### C. POSSIBLE

Not used.

### B. Laboratory Testing Services Available

The Public Health and Environmental Laboratories (PHEL) will perform acid-fast bacillus smears from a skin biopsy. Further testing of specimens for *M. leprae* may be coordinated with the Centers for Disease Control and Prevention (CDC). For additional information, contact the Mycobacteriology Laboratory at 609.292.5849.

## 3) DISEASE REPORTING AND CASE INVESTIGATION

### A. Purpose of Surveillance and Reporting

- To identify the source of infection and possible modes of acquisition.

### B. Laboratory and Healthcare Reporting Requirements

The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that health care providers and laboratories report (by telephone, confidential fax, over the Internet using the Communicable Disease Reporting System [CDRS] or in writing) all cases of Hansen’s disease to the local health officer having jurisdiction over the locality in which the patient lives, or, if unknown, to the health officer in whose jurisdiction the health care provider requesting the laboratory examination is located.

### C. Local Departments of Health Reporting and Follow-Up Responsibilities

#### 1. Reporting Requirements

The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that each local health officer must report the occurrence of any case of Hansen’s disease, as defined by the reporting criteria in Section 2 A above. Current requirements are that cases be reported to the NJDHSS Infectious and Zoonotic Diseases Program (IZDP) using the form [CDS-1](#) or the report may also be filed electronically over the Internet using the confidential and secure CDRS.

## 2. Case Investigation

- a. It is the local health officer's responsibility to complete also the [CDS-1](#) form. The information required on the forms can be obtained from the patient's healthcare provider or the medical record. Remember that diagnosis of leprosy leads to patient stigmatization among certain ethnic groups and **contacting the patient or his/her family can only be done after obtaining permission from physician.**
- b. Use the following guidelines for assistance in completing the forms:
  - 1) Accurately record the demographic information, dates of symptom onset and first diagnosis, and type of leprosy. Because most patients with leprosy in New Jersey are immigrants, there is a strong possibility that the patient was previously diagnosed and possibly treated in his/her native country.
  - 2) Ask questions about contact with armadillos because a disease identical to leprosy affects these animals, and there have been reports suggesting that feral armadillos in Louisiana and Texas have transmitted disease to humans.
  - 3) Complete information about the diagnosis and current treatment. Ask questions about diagnosis to determine if the patient's disease is confirmed.
  - 4) Ask questions about residence (*e.g.*, living outside the United States) and place of birth to determine if a person has resided or was born in a country endemic for leprosy. Complete the residence history as fully as possible.
  - 5) Ask about household contacts and other contacts to determine the possible source of infection as well as whether others have been exposed.
  - 6) Inform the health care provider about the Regional Hansen's Disease Center in Bellevue Hospital-NYU Medical Center located at First Avenue at 27<sup>th</sup> Street, New York, NY 10016, phone: 212.562.4141. The Center is run by the federally founded National Hansen's Disease Program in Baton Rouge, LA. The Center provides free-of-charge services such as treatment in the community where the patient lives, biopsy confirmation of the diagnosis, and clinical consultation by telephone.
  - 7) If there have been several attempts to obtain patient information (*e.g.*, healthcare provider does not return calls or respond to a letter) please fill out the form with as much information as possible. Please note on the form the reason why it could not be filled out completely. **If CDRS is used to report enter collected information into the "Comments" section.**

After completing the case report form, it should be mailed with lab reports (in an envelope marked "Confidential") to the NJDHSS IZDP or the report can be filed electronically over the Internet using the confidential and secure CDRS. The mailing address is:

NJDHSS  
Division of Epidemiology, Environmental and Occupational Health  
Infectious and Zoonotic Diseases Program  
P.O.Box 369  
Trenton, NJ 08625-0369

- c. Institution of disease control measures is an integral part of patient investigations. It is the local health officer's responsibility to understand, and, if necessary, to institute the control guidelines listed below in Section 4, "Controlling Further Spread."

## 4) CONTROLLING FURTHER SPREAD

### A. Isolation and Quarantine Requirements

#### Minimum Period of Isolation of Patient

No restrictions if under medical care.

#### Minimum Period of Quarantine of Contacts

No restrictions.

## **B. Protection of Contacts of a Case**

Handwashing is recommended for all contacts of lepromatous cases, and disinfection of nasal discharges of the patient should be considered during the infectious period. Periodic examination of household and other contacts should occur annually for 5 years after the last contact with a patient (prior to the patient's treatment inception).

## **C. Managing Special Situations**

### **Response to Community Perceptions**

Community and individual perceptions about leprosy may reflect inaccurate concerns about communicability and health implications for the diagnosed that are not valid due to the nature of the disease, treatment and prevention techniques. It is important to convey to all concerned parties the low communicability of this disease and the availability of effective treatment and prevention regimens. Likewise, strictly enforce confidentiality of patient information; release information only to appropriate agencies and individuals who need to know.

## **D. Preventive Measures**

**Patient education is an essential part of treatment, and it is a responsibility of physician taking care of the patient. Education can proceed only if the physician permits health department contact with a patient.**

- Education of the patient should stress the availability and efficacy of therapy.
- Education of the patient household contacts (as identified on the line listing in the surveillance form; see Section 3 C, Case Investigation) should include modes of transmission, preventive therapy (if appropriate), and referral to a healthcare provider for follow-up.
- It is important to convey to the patients and contacts the low communicability of this disease and the availability of effective treatment and prevention regimens.

## **ADDITIONAL INFORMATION**

A [Hansen's Disease](http://www.state.nj.us/health) fact sheet can be obtained at the NJDHSS website at [<http://www.state.nj.us/health>](http://www.state.nj.us/health). Click on the "Topics A to Z" link and scroll down to the subject *Hansen's Disease*.

The formal CDC surveillance case definition for leprosy is the same as the criteria outlined in Section 2A of this chapter. CDC case definitions are used by state health departments and CDC to maintain uniform standards for national reporting. For reporting to the NJDHSS, always refer to Section 2A.

## **REFERENCES**

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